DOCUMENT RESUME

ED 471 350 TM 034 642

AUTHOR	Arant, Michelle P.; Coleman, Amy M.; Daniel, Bonnie V.
TITLE	Instructional Strategies for On-line Courses in Education.
PUB DATE	2002-11-00
NOTE	17p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Chattanooga, TN, November 6-8, 2002).
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Community Development; Higher Education; *Online Courses; *Teaching Methods; *Training
IDENTIFIERS	Asynchronous Learning Networks

ABSTRACT

This paper describes a 2-hour training session that presented current research on the efficacy of online teaching, as well as practical steps in converting traditional classroom materials in education for asynchronous learning. The presentation focused on three areas in particular: (1) recent research on the efficacy of online courses; (2) the required paradigm shift in the way instructors approach teaching in online learning environments; and (3) strategies for developing community in online classes. The Learning Style Questionnaire was discussed as a point of reference for professors to use in developing effective online instruction. An appendix contains an illustration of the Learning Styles model. (Contains 20 references.) (Author/SLD)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 471 350

Instructional Strategies for On-line Courses in Education

Michelle P. Arant, Amy M. Coleman, and Bonnie V. Daniel

University of Tennessee at Martin

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

B. Daniel

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Training Session

Presented At

Mid-South Educational Research Association Annual Meeting

November 6-8, 2002

Chattanooga, TN

TM034642

BEST COPY AVAILABLE

Abstract

This two-hour training session presented current research on the efficacy of on-line teaching, as well as practical steps in converting traditional, classroom materials in education to asynchronous learning. Specifically, the presentation focused on three areas: (a) recent research on the efficacy of on-line courses, (b) required paradigm shift in the way instructors approach teaching in on-line learning environments, and (c) strategies for developing community in on-line classes. The Learning Style Questionnaire was discussed as a point of reference for professors to use in developing effective on-line instruction.

Instructional Strategies for On-line Courses in Education

This training session presented current research on the efficacy of on-line teaching, as well as practical steps in converting traditional, classroom materials in education to asynchronous learning. Specifically, the presentation focused on three areas: (a) recent research on the efficacy of on-line courses, (b) required paradigm shift in the way instructors approach teaching in on-line learning environments (OLE), and (c) strategies for developing community in an on-line learning environment. As a practical application, the Learning Style Questionnaire (Marshall & Merritt, 1986) provided the basis from which to discuss how learning styles can direct faculty members in designing optimal learning experiences.

Growth in On-line Learning

On-line learning continues to capture the attention of business and education as an economical and convenient medium for learning. According to the US Department of Education, the number of on-line courses, degree programs, and enrollment in the United States nearly doubled from 1995 to 1998 (Flowers, 2001). The economic impact further highlights the dramatic impact of on-line learning. According to international data, "the e-learning market, which includes Internet and Intranet courses, will grow from $4 billion to $15 billion worldwide between 1998 and 2002" (Jones, 2000). With the rapid growth and high expectations for on-line learning, faculty members should identify those environments, subjects, teaching styles, and learning styles that produce effective learning experiences for students. This point is especially salient for teacher education preparation programs as the demand for k-12 teachers with

competencies in teaching with computers increases. Higher education must model good practice to these beginning teachers.

Efficacy of On-line Learning

Although OLEs may provide convenient and cost-effective course offerings, the conditions for promoting effective learning experiences have not been fully researched (Quitadamo, Ian, & Brown, 2001). OLEs provide an interaction space that allows students to engage actively in critical dialogue (Quitadamo, Ian, & Brown, 2001) and potentially move education from teacher-centered, lecture-based, passive instruction to learner-centered, self-reflective, active learning (Lan, 1999). Other studies indicate that the achievement and satisfaction of students in distance education courses are not significantly different than the achievement and satisfaction of students in a traditional classroom (Johnstone & Krauth, 1996).

At the center of much of the debate regarding OLEs is the absence of regular, face-to-face interaction of professor to student, as well as interaction of students to other students. Muirhead (2002) stated that OLEs pose communication problems, and that both teachers and students must be active participants who are consistently involved in relevant academic discussion. According to Muirhead (2002), proponents state that interactivity in distance education parallels, and sometimes exceeds, the traditional classroom. The OLE may even promote interaction with a diverse population. According to Herman, Lam, and Tolentino (2000), the positive aspects of OLEs include the convenience for both the student and faculty through distance and individual pace. For some students and professors, however, a barrier for success in OLEs include the absence of personal interaction. Just as educators recognize effective and ineffective practice in traditional classroom settings, research on computer-mediated learning highlights how this medium challenges assumptions about higher education.

For example, while convenience and accessibility with on-line learning extends beyond accommodating students' personal preferences and schedules, on-line learning potentially empowers students to acquire educational opportunities that would otherwise be impractical due to distance (Herman, Lam, & Tolentino, 2000). Students who live in one place and want to declare a specific major and obtain a degree from a highly recognized college elsewhere can do so if they have access to the Internet. From a pedagogical perspective, on-line classes allow students to work at their own pace; a level of accountability and responsibility is present that may or may not exist in a traditional class setting. Further, students who may be shy, non-native speakers of English, and people who need more time to learn benefit from taking on-line courses.

In OLEs, students must be responsible for their own learning beyond the expectations that professors hold for students in a traditional class setting. For example, if a student is not motivated to monitor assignments and due dates and participate in discussions, then that student will enjoy only marginal success in this format. Likewise, students who may prefer personal interaction with professors and classmates in a traditional setting may find the interaction of an on-line class difficult. Technical difficulties, which include low bandwidth, slow Internet connections, and software limitations are hassles that should be considered because they can become very irritable to the student.

Recent research supports OLEs in providing a venue for developing higher order thinking skills in college students (Ewing, Dowling, & Coutts, 1999; Jonassen, 1995). Ewing, Dowing, and Coutts, note, however, that there is more disagreement on how to implement effectively the online technologies into learning. The characteristics OLEs that foster these higher order thinking skills include: a means of accessing, generating, and sharing information; supporting learner articulation of knowledge and reflection on what they have learned; represents and

simulate authentic, real-world problems and contexts; provide structure for student thinking; support critical discourse among learners within a learning community; promote student control of learning decisions; and integrate multiple learning perspectives (Jonassen, 1995). Reiser and Dempsey (2002) provide a classification system of levels of web use. According to their taxonomy, asynchronous learning represents immersive web use, or the highest level of web use in a learning environment. They note that at this level, students create knowledge, utilize problem-solving skills, and are challenged to codify the integration of higher-order thinking skills. The e-classroom represents a learning community in which knowledge is acquired, created, and distributed on an egalitarian basis.

Specific to education, k-12 teachers who utilize on-line sources for much or all of their professional development also risk isolating themselves from the maintenance school improvement philosophies. In addition, the dynamics of interpersonal interaction is limited. Although on-line classes are convenient and flexible for students, many in academe question whether students are receiving the same quality of education as compared to that delivered in a traditional setting. James (2001) stated that the Internet holds a tremendous potential for the rapid distribution of knowledge and information to a worldwide work force. Because of this, on-line instruction must be utilized correctly in order for it to be successful.

Paradigm Shift in Planning Courses

The unique environment of on-line learning requires both instructors and students to reconsider their perspectives of the learning process. The majority of faculty members was mentored to teach in traditional classroom settings and must adopt a new approach to plan effective OLEs.

Because some people, both students and faculty members, are overwhelmed by technology, they are fearful of learning new applications and jargon and choose not to take part in on-line education. Some suggest that teachers themselves should take on-line classes to learn pedagogical approaches that might help them in designing their own courses (Bennett, Priest, & Macperson, 2002). Research studies indicate that the achievement and satisfaction of students in distance education courses is not significantly different than the achievement and satisfaction of students in a traditional classroom (Johnstone & Krauth, 1996).

The challenge in planning OLEs extends beyond mastery of web-based course management software. Professors must adjust their own time management strategies to ensure timely presentation of content and follow-through with e-mail messages, grading, and feedback on discussion boards. In planning OLEs, professors must intentionally create community via computer use. This sense of interconnectivity provides a modicum of accountability beyond the syllabus and course assignments. This process requires reflection on the part of the faculty member in discerning how to factor students' learning style preferences with content mastery.

Learning Styles as a Portal to Planning On-line Classes

Although non-evaluative, typology theories provide insights about students' sources of challenge and support in their environments (Evans, Forney, & Guido-Dibrito, 1998). Typology theory seeks to explain behavior or coping mechanisms. Typology theories are especially helpful in providing guidance concerning structured educational experiences. Based on cognitive structuralist theory, brain research, and educational philosophy, the work of David Kolb (1976, 1981, 1999) focuses on experiential learning.

Kolb's theory not only presents preferences of learners, but also adds a different level of complexity by answering basic questions of learning and individual development. Learning, as

described by Kolb, is a four-step process. Beginning with *concrete experience*, learners involve themselves completely. With this concrete experience, the learner employs *reflective observation* to process the experience from different perspectives. At the next point in the cycle, abstract *conceptualization*, the learner creates generalizations or principles that integrate observations into sound theories. The final step is *active experimentation* where the learner implements the generalizations, testing what they have learned in new, more complex situations. When the learner encounters the next concrete experience, the student now relies on a more developed or sophisticated approach, and the cycle repeats itself. The theory holds that all learners utilize all four approaches, but different learners gravitate toward some of these abilities more so than others.

This learning cycle, or helix, is based upon two fundamental elements of the learning process: (a) information gathering and (b) processing or transforming the experience (Claxton & Murrell, 1987). Some learners prefer processing an experience through their senses in concrete ways, while others prefer doing so in more abstract approaches. Others employ active experimentation to change the information or themselves to fit their personal template of thinking.

Learners who gravitate toward Concrete Experience and Reflective Observation are termed "Divergers" and are oriented toward people and other concrete things. They prefer reflection over action. Those who prefer Reflective Observation and Abstract Conceptualization are classified as "Assimilators" and, while preferring reflection, they also prefer the world of ideas to the concrete world around them. Those who gravitate toward Abstract Conceptualization and Active Experimentation are "Convergers" and prefer ideas and acting upon their ideas. The fourth group includes those in Active Experimentation and Concrete

Experience, or Accommodators. While inclined toward action, they are oriented toward people and other concrete objects.

The theory holds that the learner cannot gravitate toward both Concrete Experience and Abstract Conceptualization as these are polar opposites (feeling and thinking) on the axis of different preferences to grasp an experience. Likewise, a learner cannot gravitate toward both Reflective Observation and Active Experimentation as these, too, are opposites (watching and doing) on the axis of processing the information grasped.

Kolb himself, however, acknowledges that the way the learners's rate themselves is the greatest limitation of the survey (Kelly, 2002). What continues to keep Kolb's theory in the forefront of discussion may be found in the reflection that results from those who take the inventory, as well as those who attempt to use the results in adjusting their teaching strategies; the results offer insights to the professor regarding how students will process different course materials, as well as what activities will complement different styles.

For this presentation, the facilitators relied on a modified version of Kolb's original inventory, referred to as the Learning Style Questionnaire (Marshall & Merritt, 1986). This revised version was used because of its adaptability to on-line administration of the instrument and because the alpha reliability coefficient for the individual scales ranged from 0.78-0.88. In addition, the estimates of the two bi-polar scales were 0.90 and 0.93 (Marshall & Merritt, 1986).

Planning an On-Line Course

Regardless of the system used to develop the course, there are steps and procedures the instructor can use to encourage student-teacher interaction, increase opportunities for learning, and increase overall satisfaction with the course. These include: an initial class meeting, online communication, monitoring student activity, using diverse instructional materials, student

testing, and online course evaluations. An initial class meeting is recommended because online learning is new to most students. It also provides an opportunity for students to meet the instructor and other students, review the syllabus and course expectations, and allows students to ask questions. It is helpful to have the students' last name and password entered into the system so that students can experiment with the log on process and ask questions (Cooper, 2000). If this is not possible, instructors may employ virtual chat-rooms to foster community development among students.

In addition, on-line communication between student and instructor, as well as between students is a necessary component of successful Web-based instruction. To ensure that communication is continuous, regular announcements should be sent to the class to inform them of upcoming assignments and activities, and to address any concerns that students expressed during the past week. The instructor should check email frequently to deliver prompt responses to questions or problems. Students are required to email the instructor at least once every other week to maintain continuous communication. Students should also be required to participate in regular class discussion through the online discussion feature. The instructor can monitor student activity by checking to see which modules have been accessed and by whom. This would enable the instructor to see which students are on task, and which ones might need some assistance. This also allows teachers to determine problems that students might be having.

Due to differences in learning styles of students, Cooper (2002) recommends that a variety of on-line delivery methods be offered. In addition to lecture notes and chapter questions, Power Point presentations, automatically graded practice exams, and links to interactive Web sites should also be offered. Another suggestion from Cooper is the use of on-line videos, which

when combined with real-time question and answer sessions, or chat sessions, proves more interesting and understandable than plain text options.

Objective student exams given on-line provide immediate feedback to the students and eliminate instructor grading. A drawback though, is that instructors can never be sure who is taking the exam. A possible solution is to have students report to campus for exams. This however, defeats the purpose of taking an on-line course. Therefore combining the two methods is suggested. All exams, except the final exam, are taken on-line. The final exam is administered on campus. Finally, student evaluations help the instructor determine the effectiveness of different areas of an on-line course. They also show where revisions might need to occur. Offering these evaluations to students also communicates to them that their input is valuable.

Administrators and professors/instructors involved in teaching on-line need to speak with enthusiasm about the enormous potential of on-line classes. In addition, they need to offer a realistic view about the challenges in creating on-line programs that survive even after the initial excitement fades and the hard work of keeping a program balanced begins. Experienced on-line educators stress to those in development the need for constructing and establishing clear goals for on-line programs, providing teachers with adequate training, creating original lessons that take advantage of the on-line medium, and mixing on-line classes with some traditional classroom meeting time (Gehring, 2002).

Conclusion

The newness and expanse of opportunities associated with on-line learning challenge faculty members to explore the effective use of this technology. The research on Kolb's theory also provides insights for professors teaching in an on-line environment. Convergers prefer teaching methods that provide decision-making, problem-solving, and hands-on work. Divergers

prefer cooperative groups and brainstorming. Teaching to Assimilators, a professor might assign the creation of a model or theory, or allow students to design projects for credit. In the same vein, Accommodators would prefer assignments that allow the discovery of learning, and activities, and projects, as opposed to reading and lectures. Recognizing the differences of learning styles enables instructors to plan course activities that enhance the students' learning experiences.

With increasing demands for professors to teach on-line, those who teach how to teach should be informed about how to best deliver learning via this medium. To do so requires reflection on the part of the faculty member with regard to content, personal philosophies of teaching, as well as mastery of teaching with technology. Further research into learning styles, student outcomes, as well as technological advancements will continue to redefine higher education.

References

Bennett, S, Priest, A, & Macperson, C. (2002). Learning about online learning: An approach to staff development for university teachers. Australian Journal of Educational Technology, 15(3).

Claxton, C.S. & Murrell, P. H. (1987). Learning styles: Implications for improving educational practices. ASHE-ERIC Higher Education Report, No. 4. Washington, DC: Association for the Study of Higher Education.

Cooper, L. (2000). Online courses – tips for making them work. *T.H.E. Journal, 27(8)*, 86-92.

Evans, N.J., Forney, D.S., & Guido-DiBrito, F. (1998). *Student development in college: Theory, research, and practice*. San Francisco: Jossey-Bass.

Ewing, J.M., Dowling, J.D., & Coutts, N. (1999). Learning using the world wide web: A collaborative learning event. *Journal of Educational Multimedia and Hypermedia, 8(1),* 3-22.

Flowers, J. (2001). *Online learning needs in technology education*. Retrieved September 2, 2002, from http://scholar.lib.vt.edu/ejournals/JTE/v13n1/flowers.html.

Gehring, J. (2002). Higher education's online odyssey, *Education Week, 21(35).*

Groh, S., & Shipman, H. (1999) *Learning styles*. Retrieved October 28, 2002, from http://www.udel.edu/inst/june99/LearningStyles/sld001.htm.

Herman, S., Lam, N., & Tolentino, A. (December 2000). Online classes: Pros and cons. *CMU 300 Final Project.*

James, G.W. (2001). *Advantages and disadvantages of online learning*. Retrieved September 30, 2002, from www.allencomm.com/events.

Johnstone, S.M. & Krauth, B. (1996). Balancing equity and access: Some principles of good practice for the virtual university. *Change 28(2),* 38-41.

Jonassen, D.H. (1995). Computers as cognitive tools: Learning with technology, not from technology. *Journal of Computing in Higher Education, 6(2),* 40-73.

Jones, D. (2000, May 23). Will business schools go out of business? E-learning, corporate academics change rules. *USA Today.*

Kelly, C. (2002). David Kolb, The theory of experiential learning and esl. Retrieved on September 15, 2002 from http://www.aitech.ac.jp/~iteslj/Articles/Kelly-Experiential/

Kolb, D. (1976). *Learning style inventory technical manual.* Boston, MA: McBer.

Kolb, D. (1981). Learning styles and disciplinary differences. In A.W. Chickering (Ed.), *The modern American college* (pp. 232-255). San Francisco: Jossey-Bass.

Kolb, D. (1999). *Learning style inventory technical specifications.* Boston, MA: McBer.

Marshall, J.C., & Merritt, S.L. (1986). The learning styles questionnaire: A validity study. *Educational and Psychological Measurement, 46,* 257-262.

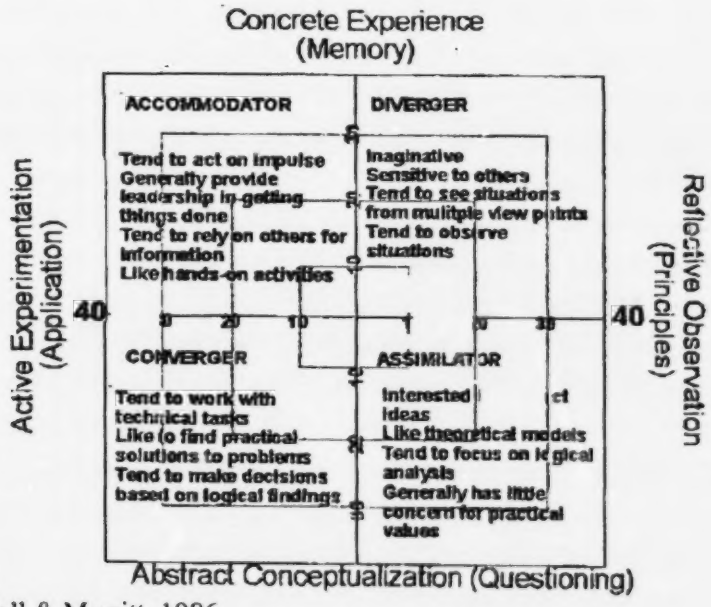
Muirhead, B. (2002, April). Selecting a distance education school. *USDLA Journal, 16(4).*

Quitadamo, I.J., & Brown, A. (2001). *Effective teaching styles and instructional design for online learning environments.* National Educational Computing Conference, "Building on the Future" July 25-27, 2001-Chicago, IL. (ERIC Document Reproduction Service No. ED462 942).

Reiser, R.A., & Dempsey, J.V. (2002). *Trends and issues in instructional design and technology.* Upper Saddle River, NJ: Merrill Prentice Hall.

Appendix

Diagram A: Learning Style Model



Source: Marshall & Merritt, 1986

The authors wish to acknowledge Jon Marshall and his granting of permission to use the Learning Style Questionnaire in this study. Likewise, the authors express their appreciation to Audra Lindsey and Genevieve Felts for their assistance in the administration of the Learning Style Questionnaire.

TM034642

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Instructional Strategies for On-line Courses in Education

Author(s): Michelle P. Arant, Amy M. Coleman, & Bonnie V. Daniel

Corporate Source:

Publication Date: 11/6/02

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1

X

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) *and* paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, please

Signature: Bonnie Daniel	Printed Name/Position/Title: Bonnie Daniel, Asst. Prof
Organization/Address: University of TN at Martin	Telephone: 731-587-7129 FAX:
	E-Mail Address: bdaniel@utm.edu Date: 11/5/02

(Over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, *or*, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

ERIC CLEARINGHOUSE ON ASSESSMENT AND EVALUATION
UNIVERSITY OF MARYLAND
1129 SHRIVER LAB
COLLEGE PARK, MD 20742-5701
ATTN: ACQUISITIONS

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
4483-A Forbes Boulevard
Lanham, Maryland 20706

Telephone: 301-552-4200
Toll Free: 800-799-3742
FAX: 301-552-4700
e-mail: info@ericfac.piccard.csc.com
WWW: http://ericfacility.org

EFF-088 (Rev. 2/2001)